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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/673,376

09/30/2003

John A. Hughes

240720US6YA

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12/08/2006

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EXAMINER

ARANCIBIA, MAUREEN GRAMAGLIA

ART UNIT

PAPER NUMBER

1763

DATE MAILED: 12/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/673,376

Applicant(s)

HUGHES ET AL.

Examiner

Maureen G. Arancibia

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) 2, 4-10, 12-17, 19, 21 and 23-39 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3, 11, 18, 20 and 22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2 October 2006 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. **Claims 1, 3, and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

Specifically, it is unclear if Claim 1 is intended to recite the subcombination of the processing element alone (the preamble recites "a processing element *for* affecting processing in a semiconductor manufacturing system") or the combination of the processing element and the semiconductor manufacturing system (Lines 2 and 3 of the claim recite "a passive component *disposed...in* the semiconductor manufacturing system"). For the purposes of the following examination on the merits, the claim has been interpreted as referring to the subcombination of the processing element alone.

Claims 3 and 11 are rejected due to their dependence on Claim 1. Clarification and/or correction are required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 3, 11, 18, 20, and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 6,367,412 to Ramaswamy et al.

In regards to Claims 1 and 18, Ramaswamy et al. teaches a semiconductor manufacturing system (Figure 1) for processing a substrate 14 using a plasma process, comprising: a processing chamber 10 configured to facilitate said plasma process (Column 1, Lines 10-11 and 45-51); a substrate holder 12 configured to support said substrate 14 (Figure 1); a gas distribution system 22 coupled to said processing chamber via plasma source 20 and configured to introduce a process gas to said processing chamber; a plasma source 20 coupled to the processing chamber and configured to generate a plasma in said processing chamber (by forming a plasma and delivering it to the processing chamber; Column 1, Lines 61-64); and a processing element 50 (Figure 3) coupled to the plasma source (Column 4, Lines 24-25) and therefore (fluidly) coupled to the gas distribution system 22 and the processing chamber 10 as broadly recited in the claim; said processing element comprising a passive component 56 (*low chemical reactivity with the plasma*; Column 4, Lines 32-38) and an

active component (*catalyst additive*) included as part of said passive component (included within the porous tube) and configured to alter the chemistry of the plasma process when exposed to the plasma process (*effective in catalyzing and thus increasing the yield of almost any chemical reaction*). (Column 5, Lines 37-63)

The semiconductor manufacturing system would be inherently structurally capable of performing plasma processing that would cause the passive component to be eroded when exposed to the plasma process, based on the processing gas selected and other process settings. The effects of the plasma processing performed in the system are process limitations that do not represent structural limitations of the apparatus recited. It has been held that a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987) This rejection is based on the fact the apparatus structure taught above has the inherent capability of being used in the manner intended by the Applicant. When a rejection is based on inherency, a rejection under 35 U.S.C. 102 or U.S.C. 103 is appropriate. (See *In re Fitzgerald* 205 USPQ 594 or MPEP 2112).

In regards to Claims 1 and 18, the passive component 56, which is included within plasma tube 50 (which takes the place of plasma tube 30 in Figure 2) is disposed proximate and opposing a substrate position in the semiconductor manufacturing system, *as broadly recited in the claim*, in that it is part of the semiconductor

manufacturing system, and thus may be considered to be proximate (or near) and opposed to (in some spatial relationship to) the substrate position.

Moreover, Ramaswamy et al. additionally expressly teaches that the processing element comprising the passive component and the active component may be installed inside the curved dielectric dome of an inductively coupled plasma reactor, such as the reactor disclosed by U.S. Patent 5,904,778 to Lu et al. (Application No. 08/687,740). (Column 5, Line 64 - Column 6, Line 9) This position of the processing element would also be proximate and opposing a substrate position within the semiconductor manufacturing system.

In regards to Claims 3, 11, 20, and 22, the active component comprises a distribution of solid particles (*the metal phase remains intact*; Column 5, Lines 37-51) encapsulated within said passive component (*The catalyst may be included in the tube being sintered or otherwise cast...The catalyst may be implanted into the porous ceramic*; Column 5, Lines 53-63), as broadly recited in the claims.

Response to Arguments

6. Applicant's arguments filed 2 October 2006 have been fully considered but they are not persuasive.

In regards to Applicant's argument that Ramaswamy et al. teaches that the passive component 56 is disposed in plasma tube 30, which is removed from the substrate 14, not disposed proximate or opposing a substrate position, the Examiner responds that during patent examination, the pending claims must be "given the broadest reasonable interpretation consistent with the specification." Applicant always

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has the opportunity to amend the claims during prosecution, and broad interpretation by the examiner reduces the possibility that the claim, once issued, will be interpreted more broadly than is justified. *In re Prater*, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-51 (CCPA 1969) In the instant case, the passive component 56 of Ramaswamy et al. is indeed disposed in the position of plasma tube 30 in Figure 2, but this meets the limitation of being disposed proximate (or near) and opposing (in some spatial relationship to) the substrate position, *as broadly recited in the claims*.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maureen G. Arancibia whose telephone number is (571) 272-1219. The examiner can normally be reached on core hours of 10-5, Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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